REMARKS

This is a full and timely response to the outstanding final Office Action mailed April 8, 2005. Upon entry of the amendments in this response, claims 1, 3 – 5, 7 – 15, 17 – 18, 20, 22 – 25, 27 – 28 and 30 - 32 remain pending. In particular, Applicants have amended claims 1, 7 – 9 , 20, 22, 25 and 28, and have canceled claim 6 without prejudice, waiver, or disclaimer. Applicants have canceled claim 6 merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicants reserve the right to pursue the subject matter of this canceled claim in a continuing application, if Applicants so choose, and do not intend to dedicate the canceled subject matter to the public. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

Objections to the Drawings

Applicants acknowledge that the previous objections to the drawings have been withdrawn.

Objections to the Specification

Applicants acknowledge that the previous objections to the Specification have been withdrawn.

Rejections Under 35 U.S.C. §112, First and Second Paragraphs

Applicants acknowledge that the previous rejections under 35 U.S.C. §112, first and second paragraphs, have been withdrawn.

Rejections Under 35 U.S.C. §102

Applicants acknowledge that the previous rejections under 35 U.S.C. §102 have been withdrawn.

Rejections Under 35 U.S.C. §103

The Office Action indicates that claims 1, 3 – 5, 15, 17, 20, 22 – 25, 27 and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Banks* in view of *Wei*, and further in view of *Wallace*. The Office Action also indicates that claims 6 – 10, 12 – 14 and 30 –32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Banks* in view of *Wei* and *Wallace*, and further in view of *Sasin*. Additionally, the Office Action indicates that claims 11 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Banks* in view of *Wei* and Wallace, and further in view of *Circo*. In this regard, Applicants have canceled claims 5 and 6 and respectfully assert that the rejections as to these claims have been rendered moot. With respect to the remaining claims, Applicants respectfully traverse the rejections.

As an initial matter, Applicants respectfully agree with the Examiner's contention that *Banks* and *Wei* do not teach a dataflow model. However, Applicants respectfully disagree with the contention that *Wallace* teaches such a dataflow model.

In this regard, the Office Action indicates that FIG. 8, items 38A, 38B and 38C relate to a dataflow model. Brief reference to *Wallace* indicates that these features are quite distinct from a dataflow model. In particular, *Wallace* discloses:

> FIG. 8 TEST SYSTEM
>
> Referring now to FIG. 8, there is shown an alternative embodiment of a test system in accordance with the invention. ***In FIG. 8, a plurality of circuit access units 38A, 38B and 38C, similar to unit 38 in FIG. 1, are shown coupled at different points in a telecommunications network to a large number of individual transmission circuits, some of which may be accessible by more than one access unit.*** As shown, the individual circuit access units 38A, 38B and 38C are coupled to concentrator means, shown as concentrator

switch 70, which effectively enables access from central test unit 40 to any circuit accessible by any of the connected access units 38A, 38B and 38C, via concentrator 70. Concentrator switch 70 may desirably be a digital cross-connect system such as a Hekimian Super DCS Concentrator or a Tellabs, Inc. model 5323 T-Carrier Cross-Connect System. By way of example, one of the largest long-distance carriers in the United States utilizes approximately fourteen concentrator systems (corresponding to concentrator 70) each connected to as many as nine circuit access units (corresponding to units 38A, 38B and 38C). All of these fourteen concentrator systems are coupled to a central REACT 2000 Operations Support System to permit individual monitoring and test of thousands of circuits on a coast-to-coast basis from the carrier's network operations center.

(*Wallace* at column 18, lines 28 – 52). (Emphasis Added).

Based on the exemplary teaching of *Wallace* above, the items identified in the Office Action as corresponding to Applicants' dataflow model are circuit access units, *e.g.* hardware components, that are physically connected to a SUT. Applicants respectfully assert that it is improper to attribute such components to a dataflow model as is set forth in detail below:

In this regard, Applicants' claim 1 recites:

1. A method for diagnosing faults in a system under test (SUT), the SUT defining data transmission paths through which data packets are transferred, said method comprising:

providing a dataflow model corresponding to the error-free behavior of the SUT, the dataflow model including edges, each of the edges corresponding to a portion of one of the data transmission paths of the SUT capable of introducing errors in data transfer;

identifying portions of the data transmission paths of the SUT capable of introducing errors in data transfer;

providing constraints defining relationships of at least some of the portions of the data transmission paths identified with respect to data packet flow through the data transmission paths;

receiving test results corresponding to the SUT; and

diagnosing the SUT with respect to the constraints by analyzing the test results with respect to the dataflow model.

(Emphasis Added).

Applicants respectfully assert that the cited art, either individually or in combination, is deficient for the purpose of rendering claim 1 obvious. In particular, Applicants respectfully assert that the cited art does not teach or reasonably suggest at least the features/limitations emphasized above in claim 1. By way of example, none of the asserted

references teaches or reasonably suggests "a dataflow model corresponding to the error-free behavior of the SUT." Therefore, Applicants respectfully assert that claim 1 is in condition for allowance.

Since claims 3 – 5 and 7 – 14 are dependent claims that incorporate all the features/limitations of claim 1, Applicant respectfully asserts that these claims also are in condition for allowance. Additionally, these claims recite other limitations that can serve as an independent basis for patentability.

With respect to claim 15, that claim recites:

> 15. A method for diagnosing faults in a system under test (SUT), said method comprising:
>
> ***providing a dataflow model representative of error-free behavior of the SUT, the dataflow model including information corresponding to a relationship of error detection capabilities of data packet flow through the SUT***;
>
> providing constraints defining relationships of portions of the dataflow model, ***the constraints comprising equations describing the flow of the data packets through the SUT***; and
>
> diagnosing the SUT with respect to the dataflow model using the constraints.

(Emphasis Added).

Applicants respectfully assert that the cited art, either individually or in combination, is deficient for the purpose of rendering claim 15 obvious. In particular, Applicants respectfully assert that the cited art does not teach or reasonably suggest at least the features/limitations emphasized above in claim 15. By way of example, none of the asserted references teaches or reasonably suggests a "dataflow model including information corresponding to a relationship of error detection capabilities of data packet flow through the SUT." Therefore, Applicants respectfully assert that claim 15 is in condition for allowance.

Since claims 17 and 18 are dependent claims that incorporate all the features/limitations of claim 15, Applicant respectfully asserts that these claims also are in

condition for allowance. Additionally, these claims recite other limitations that can serve as an independent basis for patentability.

With respect to claim 20, Applicants have amended that claim to recite:

> 20. A system for diagnosing faults in a system under test (SUT), said system comprising:
>
> ***a dataflow model representative of error detection capabilities of the SUT***; and
>
> a reasoning engine associated with said dataflow model, said reasoning engine being adapted to evaluate test results corresponding to the SUT in relation to said dataflow model,
>
> wherein said dataflow model is a directed graph including edges and vertices, ***each of said edges corresponding to at least a portion of a data transmission path of the SUT through which data packet transfer can occur and through which an error can be introduced***, each of said edges being defined by two of said vertices.

(Emphasis Added).

Applicants respectfully assert that the cited art, either individually or in combination, is deficient for the purpose of rendering claim 20 obvious. In particular, Applicants respectfully assert that the cited art does not teach or reasonably suggest at least the features/limitations emphasized above in claim 20. By way of example, none of the asserted references teaches or reasonably suggests "a dataflow model representative of error detection capabilities of the SUT." Therefore, Applicants respectfully assert that claim 20 is in condition for allowance.

Since claims 22 - 24 are dependent claims that incorporate all the features/limitations of claim 20, Applicant respectfully asserts that these claims also are in condition for allowance. Additionally, these claims recite other limitations that can serve as an independent basis for patentability.

With respect to claim 25, Applicants have amended that claim to recite:

> 25. A system for diagnosing faults in a system under test (SUT), said system comprising:
>
> means for receiving test results corresponding to portions of data transmission paths of the SUT; and
>
> means for diagnosing the SUT with respect to constraints defining relationships of at least some of the portions of data transmission paths of the SUT with respect to data packet flow through the data transmission paths,
>
> wherein ***said means for diagnosing includes means for analyzing the SUT with respect to a dataflow model representative of error-free behavior of the SUT.***

(Emphasis Added).

Applicants respectfully assert that the cited art, either individually or in combination, is deficient for the purpose of rendering claim 25 obvious. In particular, Applicants respectfully assert that the cited art does not teach or reasonably suggest at least the features/limitations emphasized above in claim 25. By way of example, none of the asserted references teaches or reasonably suggests "means for analyzing the SUT with respect to a dataflow model representative of error-free behavior of the SUT." Therefore, Applicants respectfully assert that claim 25 is in condition for allowance.

Since claim 27 is a dependent claim that incorporates all the features/limitations of claim 25, Applicant respectfully asserts that this claim also is in condition for allowance. Additionally, this claim recites other limitations that can serve as an independent basis for patentability.

With respect to claim 28, Applicants have amended that claim to recite:

> 28. A diagnosis system stored on a computer-readable medium, the diagnosis system being adapted to diagnose data packet transfer faults in a system under test (SUT), said diagnosis system comprising:
>
> logic configured to identify portions of the data transmission paths of the SUT capable of introducing errors in data packet transfer;
>
> ***logic configured to provide constraints defining relationships of at least some of the portions of the data transmission paths with respect to data packet flow therethrough***; and
>
> logic configured to diagnose the SUT with respect to the constraints, wherein said logic configured to diagnose comprises:

logic configured to provide a dataflow model representative of error-free behavior of the SUT; and

logic configured to analyze the SUT with respect to a dataflow model.

(Emphasis Added).

Applicants respectfully assert that the cited art, either individually or in combination, is deficient for the purpose of rendering claim 28 obvious. In particular, Applicants respectfully assert that the cited art does not teach or reasonably suggest at least the features/limitations emphasized above in claim 28. By way of example, none of the asserted references teaches or reasonably suggests "logic configured to provide a dataflow model representative of error-free behavior of the SUT" much less "logic configured to analyze the SUT with respect to a dataflow model." Therefore, Applicants respectfully assert that claim 28 is in condition for allowance.

Since claims 30 - 32 are dependent claims that incorporate all the features/limitations of claim 28, Applicant respectfully asserts that these claims also are in condition for allowance. Additionally, these claims recite other limitations that can serve as an independent basis for patentability.

With respect to the rejections based on *Sasin*, Applicants respect fully assert that *Sasin sin* does not involve the use of a dataflow model. In this regard, Applicants respectfully note that *Sasin* refers to use of a test state model in contrast to the dataflow model recited. Since a test state model is not a "dataflow model representative of the error free behavior of the SUT, the data flow model including information corresponding to a relationship with error detection capabilities of data packet flow through the SUT," Applicants respectfully assert that the aforementioned rejections may not be properly remedied by the teachings of *Sasis*. Therefore, Applicants respectfully assert that the pending claims are in condition for allowance.

Art Made of Record

The art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,

M. Paul Qualey, Reg. No. 43,024

THOMAS, KAYDEN,
HORSTEMEYER & RISLEY, L.L.P.
Suite 1750
100 Galleria Parkway N.W.
Atlanta, Georgia 30339
(770) 933-9500

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on 5/24/05.

Signature